

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application:

LISTING OF CLAIMS:

13. (Previously Presented) A method for communicating at least one message, the method comprising:

coding each of the at least one message using a respective orthogonal function so as to form a transmission signal, each respective orthogonal function being an approximation of a respective Hermite function;

performing a Fourier transform on a received signal; and

then decoding the Fourier transformed received signal using the respective orthogonal function so as to obtain the at least one message.

14. (Previously Presented) The method as recited in claim 13 further comprising filtering the received signal at least one of before and after the performing of the Fourier transform.

15. (Previously Presented) The method as recited in claim 14 wherein the filtering includes a low-pass filtering.

16. (Previously Presented) The method as recited in claim 13 wherein the decoding is performed in both a time domain and a frequency domain.

17. (Previously Presented) The method as recited in claim 16 wherein the decoding provides at least a time domain result and a frequency domain result and further comprising applying a metric to the time domain result and the frequency domain result so as to select one of the results.

18. (Previously Presented) The method as recited in claim 17 wherein the metric includes a Euclidian metric.

19. (Previously Presented) The method as recited in claim 13 further comprising modulating the transmission signal into higher frequency domains.

20. (Previously Presented) A circuit arrangement for communicating at least one message, the circuit arrangement comprising:

a coding device at a transmission side for coding each of the at least one message using a respective orthogonal function so as to form a transmission signal, each respective orthogonal function being an approximation of a respective Hermite function; and

a demodulation device at a receiving side for recovering the at least one message from a received signal via a decoding using the respective orthogonal function, the demodulation

device including a Fourier-transform device for performing a Fourier transform on the received signal before the decoding.

21. (Previously Presented) The circuit arrangement as recited in claim 20 wherein the demodulation device further includes a respective first decoder unit corresponding to each of the at least one message, each respective first decoder unit including a respective first multiplier, a respective first integrator and a respective first discriminator connected in series.

22. (Previously Presented) The circuit arrangement as recited in claim 21 wherein each respective first decoder unit is for decoding the received signal in a time domain and wherein the demodulation device further includes a respective second decoder unit associated with each respective first decoder unit, each respective second decoder unit being for decoding the received signal in a frequency domain and including a respective second multiplier, a respective second integrator and a respective second discriminator connected in series.

23. (Previously Presented) The circuit arrangement as recited in claim 20 wherein the demodulator further includes a respective discriminator corresponding to each of the at least one message and a respective first and second evaluator unit connected to each respective discriminator, the first evaluator unit for decoding the signal in a time domain and including a respective first multiplier and a respective first integrator connected in series, the second evaluator unit for decoding the signal in a frequency domain and including a respective second multiplier and a respective second integrator connected in series--.